

TFW

PTO/SB/21 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM (to be used for all correspondence after initial filing) Total Number of Pages in This Submission: _____	Application Number	10/815,312
	Filing Date	April 1, 2004
	First Named Inventor	Yung-Tin Chen
	Art Unit	1756
	Examiner Name	Stephen D Rosasco
	Attorney Docket Number	MA-117

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): 1. Return receipt postcard 2. 29 references
Remarks: _____		

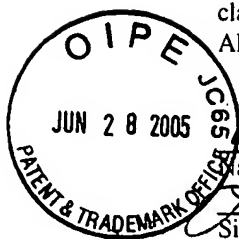
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Matrix Semiconductor, Inc.		
Signature	<i>[Signature]</i>		
Printed name	Pamela J. Squyres		
Date	6/23/05	Reg. No.	52246

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature	<i>[Signature]</i>		
Typed or printed name	LORIE ARKLEY	Date	6/24/05

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on.



6/24/05
Date of Deposit

LORIE ARKLEY
Name (printed)

Lorie Arkley
Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Yung-Tin Chen

Application No.: 10/815,312

Filed: April 1, 2004

Title: Photomask Features with
Chromeless Nonprinting Phase Shifting
Window

Attorney Docket No.: MA-117

Group Art Unit: 1756

Examiner: Stephen D. Rosasco

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir or Madam,

Pursuant to the obligation under 37 CFR § 1.56 and in conformance with 37 CFR §§ 1.97-1.99, Applicant hereby submits documents A1-A37 as listed on the attached form PTO-1449 for consideration by the Examiner. Copies of reference documents A9-A37 are enclosed herewith. Applicant requests that the Examiner review the entire disclosure of these documents and make them of record.

The filing of this Information Disclosure Statement does not constitute an admission that the information cited herein is, or is considered to be, material to patentability as defined in 37 CFR §1.56(b). Further Applicant reserves the right to contest that any of the information submitted herewith is prior art against the present application.

Dated: 6/23/05

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'P. Squyres', written over a horizontal line.

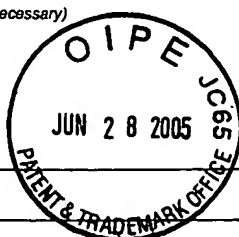
Pamela J. Squyres
Agent for Applicants
Reg. No. 52,246

Pamela J. Squyres
Matrix Semiconductor
3230 Scott Blvd
Santa Clara, CA 95054
Tel. 408-869-2921

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)



Sheet 1 of 3

Complete if Known

Application Number	10/815,312
Filing Date	April 1, 2004
First Named Inventor	Chen, Yung-Tin
Group Art Unit	1756
Examiner Name	Rosasco, Stephen

Attorney Docket No: MA-117

US PATENT DOCUMENTS

Examiner Initial *	Cite No	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date if Appropriate
	A1	5,240796	08/31/1993	Lee et al.			
	A2	6,057063	05/02/2000	Liebmann et al.			
	A3	6,482555	11/19/2002	Chen et al.			
	A4	6,523165	02/18/2003	Liu et al.			
	A5	6,541165	04/01/2003	Pierrat			
	A6	6,551750	04/22/2003	Pierrat			
	A7	6,569583	05/27/2003	Cho et al.			
	A8	20030022074	01/30/2003	Nolscher			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²
--------------------	---------	---------------------	------------------	---	-------	----------	----------------

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (In CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A9	BERNARD, DOUGLAS.A., et al., "Clear Field Dual Alternating Phase Shift Mask Lithography", <u>Optical Microlithography XV, SPIE Vol. 4691, (2002),999-1008</u>	
	A10	BURKHARDT, M., et al., "Through Pitch Correction of Scattering Effects in 193 nm Alternating Phase Shift Masks", <u>Optical Microlithography XV Vol. 4691, No. I, SPIE, (2002),348-358</u>	
	A11	CHA, HAN-SUN., et al., "A Study on Optimization of Alternating Phase Shifting Mask Structure", 21st Annual BACUS Symposium on Photomask Technology, <u>SPIE Vol.4562, No. II, (2002),1008-1016</u>	
	A12	FERGUSON, RICHARD.A., "Pattern-Dependent Correction of Mask Topography Effects for Alternating Phase-Shifting Masks", <u>SPIE Vol. 2440, (2/95),349-360</u>	
	A13	GRIESINGER, UWE., et al., "Balancing of Alternating Phase Shifting Masks for Practical Application: Modeling and Experimental Verification", <u>Proc. of SPIE, Vol. 4186, (2001),372-383</u>	
	A14	GRIESINGER, UWE., et al., "Transmission & Phase Balancing of alternating Phase Shifting Masks (5X)-Theoretical & Experimental Result", <u>19th Annual Symposium on Photomask Technology Vol. 3873, No. I, SPIE, Published in: Monterey, US,(1999),359-369</u>	
	A15	IRIE, SHIGEO., "Sub-70-nm Pattern Fabrication using an Alternating Phase Shifting Mask in 157-nm Lithography", <u>Optical Microlithography XV, SPIE, Vol. 4691, (2002),1654-1664</u>	
	A16	KANG, MYUNG-AH., "Feasibility evaluations of alternating phase shift mask for imaging sub-80nm feature with KrF", <u>Optical Microlithography XVI, SPIE Vol. 5040, (2003),1115-1124</u>	
	A17	KIM, KEEHO., et al., "Optimization of Process Condition to Balance MEF and OPC	

EXAMINER

DATE CONSIDERED

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)



Complete if Known

Application Number	10/815,312
Filing Date	April 1, 2004
First Named Inventor	Chen, Yung-Tin
Group Art Unit	1756
Examiner Name	Rosasco, Stephen

Sheet 2 of 3

Attorney Docket No: MA-117

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		for Alternating PSM-Control of Forbidden Pitches", <u>Optical Microlithography XV</u> , Vol. 4691, No. I, SPIE, (2002),240-246	
	A18	KOO, SANG-SOOL., et al. , "Study on the Potentialities of sub-100nm Optical Lithography of Alternating and Phase-edge Phase Shift Mask for ArF Lithography", <u>20th Annual BACUS Symposium on Photomask Technology</u> , Vol. 4186, SPIE, (2001),346-358	
	A19	KOSTELAK, R.L. , et al. , "Exposure Characteristics of Alternate Aperture Phase-Shifting Masks Fabricated using a Subtractive Process", <u>J. Vac. Sci. Tech. B</u> , Vol. 10(6), (Nov/Dec 1992),3055-3061	
	A20	LEVENSEN, M.D. , et al. , "Phase Phirst! An Improved Strong-PSM Paradigm", <u>Proc. os SPIE</u> , Vol. 4186, (2001),395-404	
	A21	LIN, CHIH-CHENG., et al. , "Alternating PSM defect printability at 193-nm wavelength", <u>21st Annual BACUS Symposium on Photomask Technology Vol. 4562, No. II, SPIE</u> , (2002),1121-1125	
	A22	MAURER, WILHELM., et al. , "Proximity Effects of Alternating Phase Shift Masks", <u>19th Annual Symposium on Photomask Technology</u> , Vol. 3873, No. I, SPIE, (9/1999),344-349	
	A23	MISAKA, AKIO., et al. , "Improved outline phase shifting mask for reduction of the mask error enhancement factor", <u>Optical Microlithography XVI, Proceedings of SPIE</u> , Vol. 5040, (2003),1220-1230	
	A24	MURAI, SHIAKI., et al. , "Establishment of Production Process and Assurance Method for Alternating Phase Shift Masks", <u>20th Annual BACUS Symposium on Photomask Technology, SPIE Vol. 4186</u> , (2001),890-901	
	A25	PETERSEN, JOHN.S. , et al. , "Designing Dual-Trench Alternating Phase-Shift Masks for 140 NM and Smaller Features Using 248 NM KRF and 193 NM ARF Lithography", <u>Proc. of SPIE</u> , Vol. 3412, (1998),503-520	
	A26	PIERRAT, C., "Investigation of Proximity Effects in Alternating Aperture Phase Shifting Masks", <u>20th Annual BACUS Symposium on Photomask Technology</u> , Vol. 4186, SPIE, (2001),325-335	
	A27	PIERRAT, CHRISTOPHE., et al. , "New alternating phase-shifting mask conversion methodology using phase conflict resolution", <u>Optical Microlithography XV</u> , Vol. 4691, No. I, SPIE, (2002),325-335	
	A28	SAITOU, HIDETAKA., et al. , "Improvement of Alt-PSM Production Process Using Backside Phase Measurement Method", <u>21st Annual BACUS Symposium on Photomask Technology Vol. 4562, No. II, SPIE</u> , (2002),1087-1095	
	A29	SHIN, IN-GYUN., et al. , "A Study on the effect of mask reduction ratio in alternating phase shift masks", <u>20th Annual BACUS Symposium on Photomask Technology</u> , Vol.4186, SPIE, (2001),309-315	
	A30	SPENCE, CHRISTOPHER., et al. , "Integration of Optical Proximity Correction Strategies in Strong Phase Shifters Design for Poly-Gate Layers", <u>19th Annual Symposium on Photomask Technology</u> , Vol. 3873, No. I SPIE, (9/1999),277-287	

EXAMINER

DATE CONSIDERED

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Complete if Known

Application Number	10/815,312
Filing Date	April 1, 2004
First Named Inventor	Chen, Yung-Tin
Group Art Unit	1756
Examiner Name	Rosasco, Stephen

Sheet 3 of 3

Attorney Docket No: MA-117

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A31	TAN, SIA.K. , "Optimization of Alternating PSM Mask Process for 65 nm Poly Gate Patterning Using 193 nm Lithography", <u>Optical Microlithography XVI, SPIE Vol. 5040, (2003), 1125-1136</u>	
	A32	THIELE, JORG., et al. , "Introduction of full level alternating phase shift mask technology into IC manufacturing", <u>Optical Microlithography XV, Vol. 4691, No. I, SPIE, (2002), 89-97</u>	
	A33	TSAI, W., et al. , "Technological Challenges in Implementation of Alternating Phase Shift Mask", <u>20th Annual BACUS Symposium on Photomask Technology, Vol. 4186, SPIE, (2001), 433-443</u>	
	A34	WESTERMAN, R., et al. , "Plasma Etching of Quartz for the Fabrication of Alternating Aperture Phase Shift Photomasks: Etch Rate Uniformity Study", <u>20th Annual BACUS Symposium on Photomask Technology, Vol. 4186, SPIE, (2001), 316-324</u>	
	A35	WU, CLIVE., "Alternating PSM Design and Its Implications to the Design-to-Manufacturing Flow", <u>2, Numerical Technologies, Inc. 70 W. Plumeria Dr., San Jose, CA 95134, 7 pgs</u>	
	A36	YAMAMOTO, TOMOHIKI., et al. , "Impact of Alternating Phase Shift Mask Quality on 100 nm Gate Lithography", <u>20th Annual BACUS Symposium on Photomask Technology, Vol. 4186, SPIE, (2001), 423-432</u>	
	A37	YOON, SI-YEUL., et al. , "Evaluation of various alternating phase shifting mask processes for KrF lithography", <u>21st Annual BACUS Symposium on Photomask Technology Vol. 4562, No. II, SPIE, (2002), 1017-1025</u>	

EXAMINER**DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached